



6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 15, 25, 30, and 101

[AU Docket No. 18-85; FCC 18-43]

Auctions of Upper Microwave Flexible Use Licenses for Next-Generation Wireless Services; Comment Sought on Competitive Bidding Procedures for Auctions 101 (28 GHz) and 102 (24 GHz); Bidding in Auction 101 Scheduled to Begin November 14, 2018

AGENCY: Federal Communications Commission.

ACTION: Proposed rule; proposed auction procedures.

SUMMARY: In this document, the Commission announces auctions of Upper Microwave Flexible Use Service licenses in the 27.5–28.35 GHz (28 GHz) and 24.25–24.45 and 24.75–25.25 GHz (24 GHz) bands, designated as Auctions 101 and 102, respectively. This document proposes and seeks comment on competitive bidding procedures and minimum opening bids to be used for Auctions 101 and 102.

DATES: Comments are due on or before May 9, 2018, and reply comments are due on or before May 23, 2018. Bidding in Auction 101 for licenses in the 28 GHz band is scheduled to commence on November 14, 2018. Bidding in Auction 102 for licenses in the 24 GHz band is scheduled to commence subsequent to the conclusion of bidding in Auction 101.

ADDRESSES: Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS) or by filing paper copies. *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (May 1, 1998). All filings in response to the *Auctions 101 and 102 Comment Public Notice* must refer to AU Docket No.18-85. The Commission strongly encourages interested parties to file comments electronically, specifying the particular auction(s) (i.e., Auction 101 and/or Auction 102) to which their comments are directed, and request that an additional copy of all comments and reply comments be submitted electronically to the following email address: auction101-102@fcc.gov.

Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS:

<https://www.fcc.gov/ecfs/>. Filers should follow the instructions provided on the website for submitting comments. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket number, AU Docket No. 18-85.

Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St. SW., Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.

Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.

U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street SW., Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: For auction legal questions, Erik Beith or Kathryn Hinton in the Wireless Telecommunications Bureau's Auctions and Spectrum Access Division at (202) 418-0660. For general auction questions, the Auctions Hotline at (717) 338-2868. For Upper Microwave Flexible Use Service questions, Nancy Zaczek or Janet Young in the Wireless Telecommunications Bureau's Broadband Division at (202) 418-2487.

SUPPLEMENTARY INFORMATION: This is a summary of the Public Notice (*Auctions 101 and 102 Comment Public Notice*), AU Docket No. 18-85, FCC 18-43, adopted and released on April 17, 2018. The *Auctions 101 and 102 Comment Public Notice* includes the following attachments: Attachment A,

Summary of Licenses to be Auctioned; and Attachment B, Bid Formula for Auction 101. The complete text of the *Auctions 101 and 102 Comment Public Notice*, including all attachments, is available for public inspection and copying from 8:00 a.m. to 4:30 p.m. Eastern Time (ET) Monday through Thursday or from 8:00 a.m. to 11:30 a.m. ET on Fridays in the FCC Reference Information Center, 445 12th Street SW, Room CY-A257, Washington, DC 20554. The complete text is also available on the Commission's website at www.fcc.gov/auction/101-102/ or by using the search function for AU Docket No. 18-85 on the Commission's ECFS web page at www.fcc.gov/cgb/ecfs/. Alternative formats are available to persons with disabilities by sending an email to FCC504@fcc.gov or by calling the Consumer & Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY). Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated in the *Auctions 101 and 102 Comment Public Notice* in AU Docket No. 18-85.

I. INTRODUCTION

1. By the *Auctions 101 and 102 Comment Public Notice*, the Commission announces that it will auction a total of 5,986 Upper Microwave Flexible Use Service (UMFUS) licenses in the 27.5–28.35 GHz (28 GHz) and 24.25–24.45 and 24.75–25.25 GHz (24 GHz) bands (collectively, the UMFUS bands), and it seeks comment on the procedures to be used for these auctions. The bidding in the auction for licenses in the 28 GHz band, which is designated as Auction 101, is scheduled to commence on November 14, 2018. Bidding in the auction for licenses in the 24 GHz band, which is designated as Auction 102, will be scheduled to commence subsequent to the conclusion of bidding in Auction 101. As discussed below, the Commission proposes to use its standard simultaneous multiple-round (SMR) auction format for Auction 101 (28 GHz) and a clock auction format for Auction 102 (24 GHz).

II. LICENSES TO BE OFFERED IN AUCTIONS 101 AND 102

A. Description of Licenses

2. The 1.55 gigahertz of UMFUS spectrum available in Auctions 101 and 102 will be

licensed on a geographic area basis. The Second Further Notice of Proposed Rulemaking in the Spectrum Frontiers proceeding raised issues with respect to Fixed-Satellite Services (FSS) use in a portion of the 24 GHz band, operability in the 24 GHz band, whether to add an alternative performance requirement metric for UMFUS services in the millimeter wave (mmW or mmWave) bands, and certain issues related to mobile spectrum holdings policies for UMFUS services in the mmW bands. The Commission plans to make a decision on these issues before the start of Auction 101. The 3,074 licenses in the 28 GHz band offered in Auction 101 will be county-based licenses. The 28 GHz band will be licensed as two 425 megahertz blocks (27.500- 27.925 GHz and 27.925-28.350 GHz). For each county in which 28 GHz licenses will be available for auction, both blocks of the 28 GHz band will be available.

3. Auction 102 will offer 2,912 licenses in the 24 GHz band, and the licenses will be based on PEAs. The lower segment of the 24 GHz band (24.25–24.45 GHz) will be licensed as two 100 megahertz blocks, while the upper segment (24.75–25.25 GHz) will be licensed as five 100 megahertz blocks.

4. Each of the bands available in Auctions 101 and 102 will be licensed on an unpaired basis. A licensee in these bands may provide any services permitted under a fixed or mobile allocation, as set forth in the non-Federal Government column of the Table of Frequency Allocations in Section 2.106 of the Commission’s rules.

5. Table 1 in the *Auctions 101 and 102 Comment PN* contains summary information regarding the UMFUS licenses available in Auction 101. Table 2 in the *Auctions 101 and 102 Comment PN* contains summary information regarding the UMFUS licenses available in Auction 102.

6. A summary of the licenses to be offered in Auctions 101 and 102 is available in Attachment A to the *Auctions 101 and 102 Comment Public Notice*. The 28 GHz licenses listed in Attachment A as available in Auction 101 do not include counties within the boundaries of existing active 28 GHz licenses. Due to the large number of licenses offered in Auctions 101 and 102, the complete list of licenses to be offered in these auctions will be provided in electronic format only, available as separate

Attachment A files at www.fcc.gov/auction/101-102.

B. Incumbents in 28 GHz and 24 GHz Bands

7. Active licenses in the 28 GHz band cover 1,695 full counties and two partial counties.

Active licenses in the 24 GHz band cover nine PEAs.

C. Sharing Issues

1. 28 GHz Band

8. As background that should guide decisions to participate in the auctions, the Commission set up a sharing scheme for the 28 GHz band. Specifically, licenses for UMFUS in the 28 GHz band are being made available on a shared basis with FSS earth stations on a co-primary basis. Up to three transmitting FSS earth stations may be located in each county that are not required to protect UMFUS operations within a specified interference zone. In the *2016 Spectrum Frontiers Order*, 81 FR 79894, November 14, 2016, the Commission grandfathered all existing 28 GHz FSS earth stations authorized as of the adoption date, July 14, 2016, and granted them the right to operate under the terms of their existing authorizations without taking into account possible interference to UMFUS operations. That decision also grandfathered pending applications for 28 GHz earth stations filed prior to the adoption date of the *2016 Spectrum Frontiers Order* if such applications were subsequently granted pursuant to the existing Part 25 rules. The Commission also gave FSS operators multiple mechanisms for deploying earth stations. First, it granted status to any FSS earth stations for which the FSS operator also holds the UMFUS license, whether through participation in an auction or the secondary markets, that covers the earth station's permitted interference. To the extent FSS operators and UMFUS licensees enter into private agreements, the Commission held that their relationship will be governed by those agreements. The Commission also determined that FSS earth stations may continue to be authorized without the benefit of an interference zone, i.e., on a secondary basis.

9. In the *2017 Spectrum Frontiers Order*, 83 FR 37, January 2, 2018, the Commission decided that it would continue to authorize satellite earth stations on a first-come, first-served basis in the

28 GHz band, but modified the guidelines for their deployment. The current rule for sharing between UMFUS and FSS earth stations in the 28 GHz band is Section 25.136(a) of the Commission's rules.

2. 24 GHz Band

10. Similarly, the Commission adopted a sharing regime for the 24 GHz band as well. Specifically, licenses for UMFUS in the upper segment of the 24 GHz band (24.75–25.25 GHz) are being made available on a shared basis with incumbent Broadcast Satellite Service (BSS) feeder link stations. The upper segment of the 24 GHz band (24.75–25.25 GHz) is divided into two parts. Satellite use of the upper part (25.05–25.25 GHz) is currently restricted to BSS feeder link earth stations in EAs where there is no Fixed Service licensee. The lower part (24.75–25.05 GHz), which has no terrestrial licensees, is open for all FSS use, though BSS feeder links have priority. BSS feeder link earth stations can be licensed to operate in the 24.75–25.05 GHz and 25.05–25.25 GHz bands. In the *2017 Spectrum Frontiers FNPRM*, 83 FR 85, January 2, 2018, the Commission sought comment on licensing FSS earth stations in the 24.75–25.25 GHz band on a co-primary basis under the provisions in Section 25.136(d). This means that the 24.75–25.25 GHz band would be available only for individually-licensed FSS earth stations that meet specific requirements applicable to earth stations in other bands shared with UMFUS (e.g., limitations on population covered, number of earth station locations in a PEA, and a prohibition on earth stations in places where they would preclude terrestrial service to people or equipment that are in transit or are present at mass gatherings).

III. APPLICATION AND BIDDING PROCESSES: IMPLEMENTATION OF PART 1 RULES FOR AUCTIONS 101 AND 102

A. Separate Auction Application and Bidding Processes

11. The Commission proposes to offer the 5,986 licenses described above through two separate auctions, Auctions 101 and 102, respectively. Bidding in Auction 101 for 28 GHz band licenses is scheduled to commence on November 14, 2018. The Commission proposes to commence bidding in Auction 102 for 24 GHz band licenses subsequent to the close of bidding in Auction 101.

12. The Commission proposes to use separate application and bidding processes for Auctions 101 and 102. The Commission proposes separate auctions so that it can use different auction formats for Auctions 101 and 102, which will accommodate differences in the characteristics of the specific inventories of licenses available in these two bands and simplify the bidding process for participants. For example, the similarities among blocks in the 24 GHz band facilitate using a clock auction with generic blocks, which will speed up the bidding relative to license-by-license bidding, which is needed when blocks in the band are less uniformly available, as in 28 GHz. With respect to bidding, the Commission proposes to use its standard SMR auction format for Auction 101 (28 GHz) and a clock auction format, similar to that used for the forward auction portion (Auction 1002) of the Broadcast Incentive Auction, for Auction 102 (24 GHz), as described and explained in greater detail below. The Commission proposes to accept auction applications during separate application filing windows—one for Auction 101 and one for Auction 102. The Commission also seeks comment on whether the filing window for Auction 102 should occur prior to the close of bidding in Auction 101.

13. The Commission seeks comment on issues related to the timing of the proposed, separate application and bidding processes. Commenters should address how the sequence and timing for Auctions 101 and 102 processes, including pre- and post-auction procedures, may affect bidder participation in one or both auctions. Specifically, how can the Commission coordinate the timing of auction application and bidding procedures so as to minimize burdens on auction applicants and maximize participation and competition in both auctions? Should the Commission open both windows before bidding begins in Auction 101? Or should the Commission wait to open the filing window for Auction 102 until after bidding in Auction 101 has begun? Alternatively, should the Commission wait to open the application window for Auction 102 until after the close of bidding in Auction 101?

14. The Commission notes that, if the filing window for Auction 102 occurs prior to the close of bidding in Auction 101, entities wishing to participate in either auction would be applicants during overlapping periods of time. Further, because the licenses to be offered in both Auctions 101 and 102

cover UMFUS spectrum and are subject to many of the same service rules, applicants may view the licenses to be offered in these auctions as substitutes, at least to some extent, and therefore may be interested in participating in both auctions. Therefore, the Commission encourages commenters to consider how the timing of the separate application windows and bidding processes for Auctions 101 and 102 might affect the ban on joint bidding agreements and prohibition of certain communications by auction applicants during these overlapping auctions, as well as information disclosure procedures during the auction process, as discussed in greater detail below. Commenters should provide specific reasons for supporting or objecting to any approach.

B. Information Procedures During the Auction Process

15. As with most recent Commission spectrum license auctions, the Commission proposes to limit information available in Auctions 101 and 102 in order to prevent the identification of bidders placing particular bids until after the bidding has closed. More specifically, the Commission proposes to not make public until after bidding has closed: (1) the licenses or license areas that an applicant selects for bidding in its auction application (FCC Form 175), (2) the amount of any upfront payment made by or on behalf of an applicant for Auction 101 or 102, (3) any applicant's bidding eligibility, and (4) any other bidding-related information that might reveal the identity of the bidder placing a bid.

16. Under these proposed limited information procedures (sometimes also referred to as anonymous bidding), information to be made public after each round of bidding in Auction 101 would include the amount of every bid placed and whether a bid was withdrawn (if withdrawals are permitted). In Auction 102, information to be made public would include, for each category of license in each geographic area, the supply, the aggregate demand, the price at the end of the last completed round, and the price for the next round. In both auctions, however, the identities of bidders placing specific bids or withdrawals (if permitted) and the net bid amounts (reflecting bidding credits) would not be disclosed until after the close of bidding.

17. Bidders would have access to additional information related to their own bidding and bid

eligibility. For example, bidders would be able to view their own level of eligibility, before and during the respective auction, through the FCC auction bidding system.

18. After the close of bidding, bidders' license and/or PEA selections, as applicable, upfront payment amounts, bidding eligibility, bids, and other bidding-related actions would be made publicly available. Under the Commission's proposed SMR auction design for Auction 101, an applicant would identify on its auction application the licenses offered on which it may wish to bid during the auction. Under the Commission's proposed clock auction design for Auction 102, an applicant would select on its auction application all of the PEA(s) on which it may want to bid from the list of available PEAs.

19. Because applicants may be interested in participating in both auctions, if the Auction 102 application window occurs before the close of Auction 101, the Commission proposes that information relating to either auction that is non-public under its limited information procedures would remain non-public until after bidding has closed in both auctions. This approach will protect against disclosure, prior to the close of both auctions, of information relating to either auction that may indicate bidding strategies in the other. Under this scheduling scenario, should the Commission instead release results and make available all bidding information related to Auction 101 after the close of that auction is announced by public notice? Commenters should discuss the potential impact of the approach they favor on participation and competition in both auctions. If the Commission adopts an alternative scheduling approach and opens the Auction 102 application window after the close of bidding in Auction 101, however, the Commission proposes to apply the limited information procedures discussed above to each auction separately, and would make non-public information relating to Auction 101 available after the close of that auction and before the application filing window for Auction 102.

20. The Commission seeks comment on the above details of its proposal for implementing limited information procedures, or anonymous bidding, in Auctions 101 and 102, under a scenario in which the Commission schedules the application window for Auction 102 to occur prior to the close of bidding in Auction 101. The Commission also seeks comment on the implementation alternatives under

alternative scenarios for the timing of the auction application windows. Concerns about anti-competitive bidding and other factors that the Commission relied on as a basis for using anonymous bidding in prior auctions also would appear to apply to Auctions 101 and 102. The Commission encourages parties to provide information about the benefits and costs of complying with limited information procedures in Auctions 101 and 102, as compared with the benefits and costs of alternative procedures that would provide for the disclosure of more information on bidder identities and interests in the auctions. Commenters opposing the use of anonymous bidding in Auctions 101 and 102 should explain their reasoning and propose alternative information rules.

C. Application of Prohibition of Certain Communications

21. Section 1.2105(c)(1) of the Commission’s rules provides that, subject to specified exceptions, after the short-form application filing deadline, all applicants are prohibited from cooperating or collaborating with respect to, communicating with or disclosing, to each other or any nationwide provider of communications services that is not an applicant, or, if the applicant is a nationwide provider, any non-nationwide provider that is not an applicant, in any manner the substance of their own, or each other’s, or any other applicants’ bids or bidding strategies (including post-auction market structure), or discussing or negotiating settlement agreements, until after the down payment deadline. For purposes of Section 1.2105(c)’s prohibition, Section 1.2105(c)(5)(i) defines “applicant” as including all officers and directors of the entity submitting a short-form application to participate in the auction, all controlling interests of that entity, as well as all holders of partnership and other ownership interests and any stock interest amounting to 10 percent or more of the entity, or outstanding stock, or outstanding voting stock of the entity submitting a short-form application.

22. If, based on the Commission’s final procedures for these auctions, the short-form window for Auction 102 occurs before the close of Auction 101, entities wishing to participate in either auction will be applicants during overlapping periods of time. In this scenario, based on the relationship between the two auctions, the Commission proposes to apply the prohibition of Section 1.2105(c)(1) across both

auctions. Thus, an applicant in either auction that communicates its bids or bidding strategies to an applicant to participate in the other auction would violate the Commission's prohibited communication rule, which will apply to "all applicants" to participate in either auction, and not only to applicants for the same auction. That is, the rule prohibiting certain communications will apply to any applicant in either Auction 101 or 102. Accordingly, no Auction 101 applicant may discuss bids or bidding strategies with any other Auction 101 applicant or with an Auction 102 applicant. Conversely, no Auction 102 applicant may discuss bids or bidding strategies with any other Auction 102 applicant or with an Auction 101 applicant. In addition, the down payment deadline for Auction 102 would be the relevant down payment deadline for determining when the prohibition ends for each applicant in either auction. This approach should provide clarity with respect to permitted and prohibited communications by establishing a single end point for the prohibition.

23. If the Commission adopts an alternative approach and schedules the Auction 102 application window to occur after the close of bidding in Auction 101, the Commission proposes to apply the prohibition of certain communications separately to each auction, using each auction's post-auction down payment deadline to determine when the prohibition ends for applicants in that auction.

24. The Commission seeks comment on the details of its proposals for applying the prohibition of certain communications across Auctions 101 and 102 in the scenario in which the Auction 102 application window occurs before the close of bidding in Auction 101. If commenters support alternatives for applying the prohibition in this scenario they should provide implementation details and explain how such suggestions promote the purpose of the prohibition. The Commission also seeks comment on its suggestion for applying the prohibition under the alternative scenario in which the Auction 102 application window occurs after the close of bidding in Auction 101. The Commission requests that commenters address costs and benefits of each of these alternative ways of implementing the prohibition, and any other alternatives they may suggest, including any potential effects on auction participation and competition as well as any burden on applicants.

D. Application Requirements and Certifications Relating to Joint Bidding and Other Agreements

25. As recently amended in the *2015 Part I Report and Order*, 80 FR 56764, September 18, 2015, the Commission's rules generally prohibit joint bidding and other arrangements involving auction applicants (including any party that controls or is controlled by such applicants). For purposes of the prohibition on joint bidding arrangements, "joint bidding arrangements" include arrangements relating to the licenses being auctioned that address or communicate, directly or indirectly, bidding at the auction, bidding strategies, including arrangements regarding price or the specific licenses on which to bid, and any such arrangements relating to the post-auction market structure. This prohibition applies to joint bidding arrangements involving two or more nationwide providers, as well as joint bidding arrangements involving a nationwide and one or more non-nationwide providers, where any party to the arrangement is an applicant for the auction. A "non-nationwide provider" refers to any provider of communications services that is not a "nationwide provider."

26. For the purpose of implementing its competitive bidding rules in Auctions 101 and 102, the Commission proposes to identify AT&T, Sprint, T-Mobile, and Verizon Wireless as "nationwide providers." Because the Commission's rules allow an UMFUS licensee in the 28 GHz and 24 GHz bands to provide flexible terrestrial wireless services, including mobile services, the Commission bases its proposal on its identification of nationwide providers in the *20th Annual Mobile Competition Report*, FCC 17-126. Commenters who disagree with this proposal should identify alternative "nationwide providers" and explain why the Commission should depart from the list of nationwide providers identified in the *20th Annual Mobile Competition Report*.

27. To implement the prohibition on joint bidding arrangements, the Commission's rules require each auction applicant in its short-form application to certify that it has disclosed any arrangements or understandings of any kind relating to the licenses being auctioned to which it (or any party that controls or is controlled by it) is a part; the applicant must also certify that it (or any party that

controls or is controlled by it) has not entered and will not enter into any arrangement or understanding of any kind relating directly or indirectly to bidding at auction with, among others, “any other applicant” or a nationwide provider.

28. If, based on the Commission’s final procedures for these auctions, the Auction 102 short-form window occurs before the close of bidding in Auction 101, because entities wishing to participate in either auction would be applicants during overlapping periods of time, the Commission proposes to apply the rule prohibiting joint bidding arrangements to any applicant for Auction 101 or 102. Moreover, an entity wishing to participate in either auction would be required to disclose in its short-form application any bidding arrangements or understandings of any kind relating to the licenses being auctioned in either Auction 101 or 102. That is, under this scenario, for the purpose of implementing its competitive bidding rules in Auctions 101 and 102, the Commission proposes to apply the prohibition against joint bidding agreements such that the “licenses being auctioned” and “licenses at auction” include all of the licenses being offered in Auctions 101 and 102. The Commission seeks comment on this proposal. If, in the alternative, the Commission were to adopt procedures to schedule the Auction 102 application window to occur after the close of bidding in Auction 101, the Commission proposes that it would apply the prohibition separately to the specific licenses in each auction. The Commission seeks comment on this alternative. Commenters should give specific reasons for preferring one approach or the other and address the potential effects of each approach on applicants as well as the potential effect of each on auction participation and competition.

E. Bidding Credit Caps

29. The Commission seeks comment on establishing reasonable caps on the total amount of bidding credits that an eligible small business or rural service provider may be awarded for either Auction 101 or 102.

30. In the *2016 Spectrum Frontiers Order*, the Commission determined that an entity with average annual gross revenues for the preceding three years not exceeding \$55 million would be

designated as a “small business” eligible for a 15 percent bidding credit, and that an entity with average annual gross revenues for the preceding three years not exceeding \$20 million would be designated as a “very small business” eligible for a 25 percent bidding credit. The Commission further determined that entities providing commercial communication services to a customer base of fewer than 250,000 combined wireless, wireline, broadband, and cable subscribers in primarily rural areas would be eligible for the 15 percent rural service provider bidding credit.

31. The Commission, in the *2015 Part 1 Report and Order*, established a process to implement a reasonable cap on the total amount of bidding credits that an eligible small business or rural service provider may be awarded in any auction, based on an evaluation of the expected capital requirements presented by the particular service and inventory of licenses being auctioned. Specifically, the Commission determined that bidding credit caps would be implemented on an auction-by-auction basis, but resolved that, for any particular auction, the total amount of the bidding credit cap for small businesses would not be less than \$25 million, and the bidding credit cap for rural service providers would not be less than \$10 million. For the Broadcast Incentive Auction, the Commission adopted a \$150 million cap on small business bidding credits and a \$10 million cap on rural service provider bidding credits.

32. For Auction 101 and Auction 102, the Commission proposes a \$25 million cap on the total amount of bidding credits that may be awarded to an eligible small business in each auction (i.e., \$25 million in each auction). As noted in the *2015 Part 1 Report and Order*, the Commission set the \$150 million cap for the Broadcast Incentive Auction at a higher level than anticipated for future auctions, given the significant advantages of the low-band spectrum licenses in the Incentive Auction and the capital requirements associated with low-band spectrum. By comparison, Auction 101 and Auction 102 will offer licenses in the mmW spectrum, which has less robust propagation characteristics than the 600 MHz spectrum offered in the Incentive Auction. Moreover, the Commission anticipates that the range of potential use cases suitable for the UMFUS bands, including localized fiber replacement and IoT,

combined with the small license areas in these bands, may permit deployment of smaller scale networks with lower total costs. Further, based on past auction data, the Commission expects that a \$25 million cap on small business bidding credits will allow the substantial majority of small businesses in the auction to take full advantage of the bidding credit program. The Commission therefore believes that its proposed cap will promote the statutory goals of providing meaningful opportunities for *bona fide* small businesses to compete in auctions and in the provision of spectrum-based services, without compromising its responsibility to prevent unjust enrichment and ensure efficient and intensive use of spectrum.

33. The Commission proposes to adopt a \$10 million cap on the total amount of bidding credits that may be awarded to an eligible rural service provider in Auction 101 and Auction 102 (i.e., \$10 million in each auction). An entity is not eligible for a rural service provider bidding credit if it has already claimed a small business bidding credit. Based on its analysis of data from the Broadcast Incentive Auction, in which no rural service provider exceeded the \$10 million cap, the Commission anticipates that a \$10 million cap on rural service provider bidding credits will not constrain the ability of any rural service provider to participate fully and fairly in Auction 101 or Auction 102. In addition, to create parity in Auctions 101 and 102 among eligible small businesses and rural service providers competing against each other in smaller markets, the Commission proposes a \$10 million cap on the overall amount of bidding credits that any winning small business bidder in either auction may apply to winning licenses in markets with a population of 500,000 or less.

34. The Commission seeks comment on these proposals. Specifically, do the expected capital requirements associated with operating in the UMFUS bands, the potential number and value of UMFUS licenses, past auction data, or any other considerations justify the proposed caps or a higher or lower cap for either type of bidding credit in either auction? Commenters are encouraged to identify circumstances and characteristics of these mmW auctions that should guide the Commission in establishing bidding credit caps, and to provide specific, data-driven arguments in support of their proposals.

IV. DUE DILIGENCE

35. Each potential bidder is solely responsible for investigating and evaluating all technical and marketplace factors that may have a bearing on the value of the licenses that it is seeking in Auctions 101 and 102. Each bidder is responsible for assuring that, if it wins a license, it will be able to build and operate facilities in accordance with the Commission's rules. The Commission makes no representations or warranties about the use of this spectrum for particular services. Each applicant should be aware that a Commission auction represents an opportunity to become a Commission licensee, subject to certain conditions and regulations. This includes the established authority of the Commission to alter the terms of existing licenses by rulemaking, which is equally applicable to licenses awarded by auction. A Commission auction does not constitute an endorsement by the Commission of any particular service, technology, or product, nor does a Commission license constitute a guarantee of business success.

36. An applicant should perform its due diligence research and analysis before proceeding, as it would with any new business venture. Each potential bidder should perform technical analyses and/or refresh any previous analyses to assure itself that, should it become a winning bidder for any Auction 101 or Auction 102 license, it will be able to build and operate facilities that will comply fully with all applicable technical and regulatory requirements. The Commission strongly encourages each applicant to inspect any prospective sites for communications facilities located in, or near, the geographic area for which it plans to bid; confirm the availability of such sites; and familiarize itself with the Commission's rules regarding the National Environmental Policy Act.

37. The Commission strongly encourages each applicant to conduct its own research prior to Auctions 101 and 102, as applicable, in order to determine the existence of pending administrative, rulemaking, or judicial proceedings that might affect its decisions regarding participation in the auction.

38. The Commission also strongly encourages participants in Auctions 101 and 102 to continue such research throughout the auctions. The due diligence considerations mentioned in the *Auctions 101 and 102 Comment Public Notice* do not constitute an exhaustive list of steps that should be

undertaken prior to participating in these auctions. As always, the burden is on the potential bidder to determine how much research to undertake, depending upon the specific facts and circumstances related to its interests.

39. In addition to the foregoing due diligence considerations, which the Commission encourages of bidders in all auctions, the Commission calls particular attention in Auctions 101 and 102 to the spectrum-sharing issues described above. Each applicant should follow closely releases from the Commission concerning these issues and to consider carefully the technical and economic implications for commercial use of the UMFUS bands.

40. The Commission also reminds bidders of the Commission's mobile spectrum holding policies applicable to the mmW bands. Specifically, for purposes of reviewing proposed secondary market transactions, the Commission adopted a threshold of 1850 megahertz of combined mmW spectrum in the 24 GHz, 28 GHz, 37 GHz, 39 GHz, and 47 GHz bands. In addition, the Commission proposed in the *2017 Spectrum Frontiers FNPRM* to eliminate the pre-auction limit of 1250 megahertz that had been adopted for the 28 GHz, 37 GHz, and 39 GHz bands, consistent with the Commission's conclusion not to adopt a pre-auction limit for the 24 GHz and 47 GHz bands. Further, the Commission sought comment on whether, in the absence of pre-auction limits for mmW spectrum, it should adopt a post-auction, case-by-case review of mmW spectrum holdings for long-form applications for initial mmW licenses.

V. PROPOSED BIDDING PROCEDURES

A. Auction 101 — 28 GHz

1. Simultaneous Multiple-Round Auction Design

41. The Commission proposes to use its standard SMR auction format for Auction 101, which offers license-by-license bidding. As described further below, this type of auction offers every license for bid at the same time and consists of successive bidding rounds in which bidders may place bids on individual licenses. Typically, bidding remains open on all licenses until bidding stops on every

license. The Commission seeks comment on this proposal.

2. Bidding Rounds

42. Under this proposal, Auction 101 will consist of sequential bidding rounds, each followed by the release of round results. The initial bidding schedule will be announced in a public notice to be released at least one week before the start of bidding. Details on viewing round results, including the location and format of downloadable round results files will be included in the same public notice.

43. The Commission will conduct Auction 101 over the Internet using the FCC auction bidding system. Bidders will also have the option of placing bids by telephone through a dedicated auction bidder line. The toll-free telephone number for the auction bidder line will be provided to qualified bidders prior to the start of bidding in the auction.

44. The Commission proposes that the Wireless Telecommunications Bureau (Bureau) would retain the discretion to change the bidding schedule in order to foster an auction pace that reasonably balances speed with the bidders' need to study round results and adjust their bidding strategies. This will allow the Bureau to change the amount of time for bidding rounds, the amount of time between rounds, or the number of rounds per day, depending upon bidding activity and other factors. The Commission seeks comment on this proposal. Commenters on this issue should address the role of the bidding schedule in managing the pace of the auction, specifically discussing the tradeoffs in managing auction pace by bidding schedule changes, by changing the activity requirements or bid amount parameters, or by using other means.

3. Stopping Rule

45. The Commission has discretion to establish stopping rules before or during multiple round auctions in order to complete the auction within a reasonable time. For Auction 101, the Commission proposes to employ a simultaneous stopping rule approach, which means all licenses remain available for bidding until bidding stops on every license. Specifically, bidding will close on all licenses after the first round in which no bidder submits any new bids, applies a proactive waiver, or withdraws

any provisionally winning bids (if bid withdrawals are permitted in Auction 101). Under the proposed simultaneous stopping rule, bidding would remain open on all licenses until bidding stops on every license. Consequently, under this approach, it is not possible to determine in advance how long the bidding in Auction 101 would last.

46. Further, the Commission proposes that the Bureau would retain the discretion to exercise any of the following stopping options during Auction 101: (1) The auction would close for all licenses after the first round in which no bidder applies a waiver, no bidder withdraws a provisionally winning bid (if withdrawals are permitted in Auction 101), or no bidder places any new bid on a license for which it is not the provisionally winning bidder. Thus, absent any other bidding activity, a bidder placing a new bid on a license for which it is the provisionally winning bidder would not keep the auction open under this modified stopping rule; (2) The auction would close for all licenses after the first round in which no bidder applies a waiver, no bidder withdraws a provisionally winning bid (if withdrawals are permitted in Auction 101), or no bidder places any new bid on a license that already has a provisionally winning bid. Thus, absent any other bidding activity, a bidder placing a new bid on a FCC-held license (a license that does not have a provisionally winning bid) would not keep the auction open under this modified stopping rule; (3) The auction would close using a modified version of the simultaneous stopping rule that combines options (1) and (2); (4) The auction would close after a specified number of additional rounds (special stopping rule) to be announced by the Bureau. If the Bureau invokes this special stopping rule, it will accept bids in the specified final round(s), after which the auction will close; and (5) The auction would remain open even if no bidder places any new bid, applies a waiver, or withdraws any provisionally winning bids (if withdrawals are permitted in Auction 101). In this event, the effect will be the same as if a bidder had applied a waiver. The activity rule will apply as usual, and a bidder with insufficient activity will lose bidding eligibility or use a waiver.

47. The Commission proposes that the Bureau would exercise these options only in certain circumstances, for example, where the auction is proceeding unusually slowly or quickly, there is

minimal overall bidding activity, or it appears likely that the auction will not close within a reasonable period of time or will close prematurely. Before exercising these options, the Bureau is likely to attempt to change the pace of Auction 101. For example, the Bureau may adjust the pace of bidding by changing the number of bidding rounds per day and/or the minimum acceptable bids. The Commission proposes that the Bureau retain continuing discretion to exercise any of these options with or without prior announcement by the Bureau during the auction. The Commission seeks comment on these proposals.

4. Information Relating to Auction Delay, Suspension, or Cancellation

48. For Auction 101, the Commission proposes that at any time before or during the bidding process, the Bureau may delay, suspend, or cancel bidding in the auction in the event of a natural disaster, technical obstacle, network interruption, administrative or weather necessity, evidence of an auction security breach or unlawful bidding activity, or for any other reason that affects the fair and efficient conduct of competitive bidding. The Bureau will notify participants of any such delay, suspension or cancellation by public notice and/or through the FCC auction bidding system's announcement function. If the bidding is delayed or suspended, the Bureau may, in its sole discretion, elect to resume the auction starting from the beginning of the current round or from some previous round, or cancel the auction in its entirety. The Commission emphasizes that the Bureau will exercise this authority solely at its discretion, and not as a substitute for situations in which bidders may wish to apply their activity rule waivers. The Commission seeks comment on this proposal.

5. Upfront Payments and Bidding Eligibility

49. In keeping with the Commission's usual practice in spectrum license auctions, the Commission proposes that applicants be required to submit upfront payments as a prerequisite to becoming qualified to bid. As described below, the upfront payment is a refundable deposit made by an applicant to establish its eligibility to bid on licenses. Upfront payments related to the inventory of licenses being auctioned protect against frivolous or insincere bidding and provide the Commission with a source of funds from which to collect payments owed at the close of bidding. With these considerations

in mind, the Commission proposes upfront payments based on \$0.001 per megahertz of bandwidth per population (per “MHz-pop”). The results of these calculations are subject to a minimum of \$100 and will be rounded using the Commission’s standard rounding procedures for auctions: results above \$10,000 are rounded to the nearest \$1,000; results below \$10,000 but above \$1,000 are rounded to the nearest \$100; and results below \$1,000 are rounded to the nearest \$10. The proposed upfront payments equal approximately half the proposed minimum opening bids. The Commission seeks comment on these upfront payment amounts, which are specified in the Attachment A files.

50. The Commission further proposes that the amount of the upfront payment submitted by a bidder will determine its initial bidding eligibility in bidding units, which are a measure of bidder eligibility and bidding activity. The Commission proposes to assign each license a specific number of bidding units, equal to one bidding unit per dollar of the upfront payment. The number of bidding units for a given license is fixed and does not change during the auction as prices change. If an applicant is found to be qualified to bid on more than one license being offered in Auction 101, such bidder may place bids on multiple licenses, provided that the total number of bidding units associated with those licenses does not exceed its current eligibility. A bidder cannot increase its eligibility during the auction; it can only maintain its eligibility or decrease its eligibility. Thus, in calculating its upfront payment amount and hence its initial bidding eligibility, an applicant must determine the maximum number of bidding units on which it may wish to bid (or hold provisionally winning bids) in any single round, and submit an upfront payment amount covering that total number of bidding units. The Commission seeks comment on these proposals.

51. Congress recently passed legislation amending the Communications Act to provide that upfront auction payments for future auctions are to be deposited in the U.S. Treasury. Accordingly, upfront payments for Auctions 101 and 102 will be deposited in the U.S. Treasury.

6. Activity Rule

52. In order to ensure that the auction closes within a reasonable period of time, an activity

rule requires bidders to bid actively throughout the auction, rather than wait until late in the auction before participating. The bidding system calculates a bidder's activity in a round as the sum of the bidding units associated with any licenses upon which it places bids during the current round and the bidding units associated with any licenses for which it holds provisionally winning bids. Bidders are required to be active on a specific percentage of their current bidding eligibility during each round of the auction. Failure to maintain the requisite activity level will result in the use of an activity rule waiver, if any remain, or a reduction in the bidder's eligibility, possibly curtailing or eliminating the bidder's ability to place additional bids in the auction.

53. The Commission proposes to divide the auction into at least two stages, each characterized by a different activity requirement. The auction will start in Stage One. The Commission proposes that the Bureau will have the discretion to advance the auction to the next stage by announcement during the auction. In exercising this discretion, the Commission anticipates that the Bureau will consider a variety of measures of auction activity, including but not limited to, the percentage of bidding units associated with licenses on which there are new bids, the number of new bids, and the increase in revenue. The Commission seeks comment on these proposals.

54. The Commission proposes the following stages and corresponding activity requirements:
Stage One: In each round of the first stage of the auction, a bidder desiring to maintain its current bidding eligibility is required to be active on bidding units associated with licenses representing at least 80 percent of its current bidding eligibility. Failure to maintain the required activity level will result in the use of an activity rule waiver or a reduction in the bidder's bidding eligibility for the next round of bidding. During Stage One, a bidder's reduced eligibility for the next round will be calculated by multiplying the bidder's current round activity by five-fourths (5/4).

Stage Two: In each round of the second stage, a bidder desiring to maintain its current bidding eligibility is required to be active on 95 percent of its current bidding eligibility. Failure to maintain the required activity level will result in the use of an activity rule waiver or a reduction in the bidder's bidding

eligibility for the next round of bidding. During Stage Two, a bidder's reduced eligibility for the next round will be calculated by multiplying the bidder's current round activity by twenty-nineteenths (20/19).

55. The Commission seeks comment on these activity requirements. Under this proposal, the Bureau will also retain the discretion to change the activity requirements during the auction. For example, the Bureau could decide to add an additional stage with a higher activity requirement, not to transition to Stage Two if it believes the auction is progressing satisfactorily under the Stage One activity requirement, or to transition to Stage Two with an activity requirement that is higher or lower than the 95 percent proposed herein. If the Bureau implements stages with activity requirements other than the ones listed above, a bidder's reduced eligibility for the next round will be calculated by multiplying the bidder's current round activity by the reciprocal of the activity requirement. For example, with a 98 percent activity requirement, the bidder's current round activity would be multiplied by 50/49; with a 100 percent activity requirement, the bidder's current round activity would become its bidding eligibility (current round activity would be multiplied by 1/1). If the Bureau exercises this discretion, it will alert bidders by announcement in the FCC auction bidding system.

7. Activity Rule Waivers and Reducing Eligibility

56. For its proposed SMR auction format, the Commission proposes that when a bidder's activity in the current round is below the required minimum level, it may preserve its current level of eligibility through an activity rule waiver, if available. An activity rule waiver applies to an entire round of bidding, not to a particular license. Activity rule waivers can be either proactive or automatic. Activity rule waivers are principally a mechanism for a bidder to avoid the loss of bidding eligibility in the event that exigent circumstances prevent it from bidding in a particular round.

57. Consistent with recent FCC spectrum auctions, the Commission proposes that each bidder in Auction 101 be provided with three activity rule waivers that may be used as set forth at the bidder's discretion during the course of the auction. The FCC auction bidding system will assume that a bidder that does not meet the activity requirement would prefer to use an activity rule waiver (if available)

rather than lose bidding eligibility. Therefore, the system will automatically apply a waiver at the end of any bidding round in which a bidder's activity level is below the minimum required unless (1) the bidder has no activity rule waivers remaining; or (2) the bidder overrides the automatic application of a waiver by reducing eligibility, thereby meeting the activity requirement. If a bidder has no waivers remaining and does not satisfy the required activity level, the bidder's current eligibility will be permanently reduced, possibly curtailing or eliminating the ability to place additional bids in the auction.

58. A bidder with insufficient activity may wish to reduce its bidding eligibility rather than use an activity rule waiver. If so, the bidder must affirmatively override the automatic waiver mechanism during the bidding round by using the reduce eligibility function in the FCC auction bidding system. In this case, the bidder's eligibility would be permanently reduced to bring it into compliance with the activity rule described above. Reducing eligibility is an irreversible action; once eligibility has been reduced, a bidder cannot regain its lost bidding eligibility.

59. Under the proposed simultaneous stopping rule, a bidder would be permitted to apply an activity rule waiver proactively as a means to keep the auction open without placing a bid. If a bidder proactively were to apply an activity rule waiver (using the *proactive waiver* function in the FCC auction bidding system) during a bidding round in which no bids are placed or withdrawn (if bid withdrawals are permitted in Auction 101), the auction will remain open and the bidder's eligibility will be preserved. An automatic waiver applied by the FCC auction bidding system in a round in which there is no new bid, no bid withdrawal (if bid withdrawals are permitted in Auction 101), or no proactive waiver will not keep the auction open. The Commission seeks comment on this proposal.

8. Reserve Price or Minimum Opening Bids

60. The Commission seeks comment on the use of a minimum opening bid amount and/or reserve price prior to the start of each auction. A reserve price is an amount below which an item, or group of items, may not be won. A reserve price may be higher than the minimum opening bid, or for a group of items, the sum of minimum opening bids.

61. The Commission proposes to establish minimum opening bid amounts for Auction 101. The bidding system will not accept bids lower than these amounts. Based on the Commission's experience in past auctions, setting minimum opening bid amounts judiciously is an effective tool for accelerating the competitive bidding process. The Commission does not propose to establish an aggregate reserve price or license reserve prices different from minimum opening bid amounts for the licenses to be offered in Auction 101.

62. For Auction 101, the Commission proposes to calculate minimum opening bid amounts on a license-by-license basis using a formula based on bandwidth and license area population, similar to its approach in many previous spectrum auctions. The Commission proposes to use a calculation based on \$0.002 per MHz-pop. The results of these calculations are subject to a minimum of \$200 and will be rounded. The Commission seeks comment on these minimum opening bid amounts, which are specified in the Attachment A files. If commenters believe that these minimum opening bid amounts will result in unsold licenses or are not reasonable amounts, they should explain why this is so and comment on the desirability of an alternative approach. Commenters should support their claims with valuation analyses and suggested amounts or formulas for reserve prices or minimum opening bids.

63. In establishing minimum opening bid amounts, the Commission particularly seeks comment on factors that could reasonably have an impact on bidders' valuation of the spectrum, including the type of service offered, market size, population covered by the proposed facility, and any other relevant factors.

64. Commenters may also wish to address the general role of minimum opening bids in managing the pace of the auction. For example, commenters could compare using minimum opening bids—e.g., by setting higher minimum opening bids to reduce the number of rounds it takes licenses to reach their final prices—to other means of controlling auction pace, such as changes to bidding schedules or activity requirements.

9. Bid Amounts

65. The Commission proposes that, in each round, an eligible bidder will be able to place a bid on a given license in any of up to nine different amounts. Under this proposal, the FCC auction bidding system interface will list the acceptable bid amounts for each license.

a. Minimum Acceptable Bid Amounts

66. The first of the acceptable bid amounts is called the minimum acceptable bid amount. The minimum acceptable bid amount for a license will be equal to its minimum opening bid amount until there is a provisionally winning bid on the license. After there is a provisionally winning bid for a license, the minimum acceptable bid amount for that license will be equal to the amount of the provisionally winning bid plus a percentage of that bid amount calculated using the activity-based formula described below. In general, the percentage will be higher for a license receiving many bids than for a license receiving few bids. In the case of a license for which the provisionally winning bid has been withdrawn (if withdrawals are allowed in Auction 101), the minimum acceptable bid amount will equal the second highest bid received for the license.

67. The percentage of the provisionally winning bid used to establish the minimum acceptable bid amount (the additional percentage) is calculated based on an activity index at the end of each round. The activity index is a weighted average of (a) the number of distinct bidders placing a bid on the license in that round, and (b) the activity index from the prior round. Specifically, the activity index is equal to a weighting factor times the number of bidders placing a bid covering the license in the most recent bidding round plus one minus the weighting factor times the activity index from the prior round. For Round 1 calculations, because there is no prior round (i.e., no round 0), the activity index from the prior round is set at 0. The additional percentage is determined as one plus the activity index times a minimum percentage amount, with the result not to exceed a given maximum. The additional percentage is then multiplied by the provisionally winning bid amount to obtain the minimum acceptable bid for the next round. The result will be rounded using the Commission's standard rounding procedures

for auctions. The Commission proposes to set the weighting factor initially at 0.5, the minimum percentage at 0.1 (10 percent), and the maximum percentage at 0.2 (20 percent). Hence, at these initial settings, the minimum acceptable bid for a license would be between 10 percent and 20 percent higher than the provisionally winning bid, depending upon the bidding activity for the license. Equations and examples are shown in Attachment B to the *Auctions 101 and 102 Comment Public Notice*. The Commission seeks comment on whether to use this activity-based formula or a different approach.

b. Additional Bid Amounts

68. The FCC auction bidding system calculates any additional bid amounts using the minimum acceptable bid amount and an additional bid increment percentage. The minimum acceptable bid amount is multiplied by the additional bid increment percentage, and that result (rounded) is the additional increment amount. The first additional acceptable bid amount equals the minimum acceptable bid amount plus the additional increment amount. The second additional acceptable bid amount equals the minimum acceptable bid amount plus two times the additional increment amount; the third additional acceptable bid amount is the minimum acceptable bid amount plus three times the additional increment amount; etc. The Commission proposes to set the additional bid increment percentage at five percent initially. Hence, the calculation of the additional increment amount would be (minimum acceptable bid amount) * (0.05), rounded. The Commission seeks comment on this proposal.

c. Bid Amount Changes

69. The Commission proposes that the Bureau would retain the discretion to change the minimum acceptable bid amounts, the additional bid amounts, the number of acceptable bid amounts, and the parameters of the formulas used to calculate minimum acceptable bid amounts and additional bid amounts if the Bureau determines that circumstances so dictate. Further, the Commission proposes that the Bureau retain the discretion to do so on a license-by-license basis. The Commission also proposes for the Bureau to retain the discretion to limit (a) the amount by which a minimum acceptable bid for a license may increase compared with the corresponding provisionally winning bid, and (b) the amount by

which an additional bid amount may increase compared with the immediately preceding acceptable bid amount. For example, the Bureau could set a \$100,000 limit on increases in minimum acceptable bid amounts over provisionally winning bids. Thus, if calculating a minimum acceptable bid using the activity-based formula results in a minimum acceptable bid amount that is \$200,000 higher than the provisionally winning bid on a license, the minimum acceptable bid amount would instead be capped at \$100,000 above the provisionally winning bid. The Commission seeks comment on the circumstances under which the Bureau should employ such a limit, factors the Bureau should consider when determining the dollar amount of the limit, and the tradeoffs in setting such a limit or changing other parameters—such as the minimum and maximum percentages of the activity-based formula. If the Bureau exercises this discretion, it will alert bidders by announcement in the FCC auction bidding system. The Commission seeks comment on these proposals.

70. The Commission seeks comment on the above proposals, including whether to use the activity-based formula to establish the additional percentage or a different approach. If commenters disagree with the proposal to begin the auction with nine acceptable bid amounts per license, they should suggest an alternative number of acceptable bid amounts to use at the beginning of the auction and an alternative number to use later in the auction. Commenters may wish to address the role of the minimum acceptable bids and the number of acceptable bid amounts in managing the pace of the auction and the tradeoffs in managing auction pace by changing the bidding schedule, activity requirements, or bid amounts, or by using other means.

10. Provisionally Winning Bids

71. The FCC auction bidding system will determine provisionally winning bids consistent with practices in past auctions. At the end of each bidding round, the bidding system will determine a provisionally winning bid for each license based on the highest bid amount received for the license. A provisionally winning bid will remain the provisionally winning bid until there is a higher bid on the same license at the close of a subsequent round. Provisionally winning bids at the end of Auction 101 become

the winning bids.

72. If identical high bid amounts are submitted on a license in any given round (i.e., tied bids), the FCC auction bidding system will use a pseudo-random number generator to select a single provisionally winning bid from among the tied bids. The auction bidding system assigns a pseudo-random number to each bid when the bid is entered. The tied bid with the highest pseudo-random number will become the provisionally winning bid. The remaining bidders, as well as the provisionally winning bidder, can submit higher bids in subsequent rounds. However, if the auction were to end with no other bids being placed, the winning bidder would be the one that placed the provisionally winning bid. If the license receives any bids in a subsequent round, the provisionally winning bid again will be determined by the highest bid amount received for the license.

73. A provisionally winning bid will be retained until there is a higher bid on the license at the close of a subsequent round, unless the provisionally winning bid is withdrawn (if bid withdrawals are permitted in Auction 101). As a reminder, for Auction 101, provisionally winning bids count toward activity for purposes of the activity rule.

11. Bid Removal and Bid Withdrawal

74. The FCC auction bidding system allows each bidder to remove any of the bids it placed in a round before the close of that round. By removing a bid placed within a round, a bidder effectively “unsubmits” the bid. In contrast to the bid withdrawal provisions described below, a bidder removing a bid placed in the same round is not subject to a withdrawal payment. Once a round closes, a bidder may no longer remove a bid.

75. The Commission seeks comment on whether bid withdrawals should be permitted in Auction 101. When permitted in an auction, bid withdrawals provide a bidder with the option of withdrawing bids placed in prior rounds that have become provisionally winning bids. A bidder would be able to withdraw its provisionally winning bids using the withdraw function in the FCC auction bidding system. A bidder that withdraws its provisionally winning bid(s), if permitted, is subject to the bid

withdrawal payment provisions of the Commission's rules.

76. The Commission has recognized that bid withdrawals may be a helpful tool for bidders seeking to efficiently aggregate licenses or implement backup strategies in certain auctions. The Commission has also acknowledged that allowing bid withdrawals may encourage insincere bidding or increase opportunities for undesirable strategic bidding in certain circumstances.

77. Applying this reasoning to Auction 101, the Commission proposes to allow each bidder to withdraw provisionally winning bids in no more than two rounds during the course of the auction. To permit a bidder to withdraw bids in more than two rounds may encourage insincere bidding or the use of withdrawals for undesirable strategic bidding purposes. The two rounds in which a bidder may withdraw provisionally winning bids will be at the bidder's discretion, and there is no limit on the number of provisionally winning bids that a bidder may withdraw in either of the rounds in which it withdraws bids. Withdrawals must be in accordance with the Commission's rules, including the bid withdrawal payment provisions specified in Section 1.2104(g).

78. The Commission seeks comment on this proposal. If commenters disagree with this proposal, the Commission asks them to support their arguments by taking into account the licenses available, the impact on auction dynamics and the pricing mechanism, and the effects on the bidding strategies of other bidders.

B. Auction 102 — 24 GHz

1. Clock Auction Design

79. The Commission proposes to conduct Auction 102 using an ascending clock auction design. Under this proposal, the first phase of the auction will consist of successive clock bidding rounds in which bidders indicate their demands for categories of generic license blocks in specific geographic areas, followed by a second phase with bidding for frequency-specific license assignments. The Commission also directs the Bureau to prepare and release, concurrent with the *Auctions 101 and 102 Comment Public Notice*, technical guides that provide the mathematical details of the proposed auction

design and algorithms for the clock and assignment phases of Auction 102. Pursuant to the Commission's direction, the Bureau released the *Technical Guides on Proposed Bidding Procedures for Auction 102 (24 GHz) Public Notice*, DA 18-386, on April 17, 2018, announcing the availability of the Clock Phase Technical Guide and Assignment Phase Technical Guide on the Commission's website at www.fcc.gov/auction/101-102/. The Clock Phase Technical Guide details proposals for the clock phase of Auction 102. The Assignment Phase Technical Guide details proposals for the assignment phase. The information in the technical guides supplements the proposals in the *Auctions 101 and 102 Comment Public Notice*. For bidding in the clock phase, the Commission proposes to establish two categories of generic blocks in most PEAs; the first will consist of the two blocks between 24.25–24.45 GHz and the second category will consist of the five blocks between 24.75–25.25 GHz. In a limited number of PEAs, the Commission proposes to include one or more additional bidding categories to include any blocks with less than the full 100 megahertz of spectrum due to relocation of the incumbent licensees.

80. Consistent with the clock auction design used in the forward auction portion of the Broadcast Incentive Auction, Auction 1002, the Commission's proposed clock auction format would proceed in a series of rounds, with bidding being conducted simultaneously for all spectrum blocks available in the auction. During the clock phase, the Bureau would announce prices for blocks in each category in each geographic area, and qualified bidders would submit quantity bids for the number of blocks they seek. Bidding rounds would be open for predetermined periods of time, during which bidders would indicate their demands for blocks at the clock prices associated with the current round. As in SMR auctions, bidders would be subject to activity and eligibility rules that govern the pace at which they participate in the auction.

81. Under the Commission's proposal, in each geographic area, the clock price for a license category would increase from round to round if bidders indicate total demand that exceeds the number of blocks available in the category. The clock rounds would continue until, for all categories of blocks in all geographic areas, the number of blocks demanded does not exceed the supply of available blocks. At that

point, those bidders indicating demand for a block in a category at the final clock price would be deemed winning bidders.

82. The Commission expects that using a clock auction format with bidding for generic blocks followed by an assignment phase will considerably speed up Auction 102 relative to a typical FCC SMR auction. The relatively unencumbered nature of the 24 GHz band means that the blocks can be treated as largely interchangeable, or generic, within a bidding category and a PEA. Bidding for generic blocks in the clock phase rather than for multiple frequency-specific licenses greatly reduces auction duration since bidders no longer need to iteratively bid on the least expensive of several specific but substitutable licenses, as in an SMR auction. An assignment phase allows winners of generic blocks the opportunity to bid for specific frequency assignments. Given the number of licenses being offered in Auction 102 and the generic nature of the licenses, the Commission believes that the time savings of a clock auction relative to an SMR auction will offer significant benefits to bidders and the Commission, and enable the 24 GHz band spectrum to be put to effective use more quickly. In particular, speeding up the auction will reduce the cost of bidder participation, which typically involves internal and external staff resources dedicated to auction monitoring and strategy, as well as the opportunity costs of foregoing communications and arrangements that otherwise would be permitted outside of the “quiet period” under the Commission’s Part 1 rules.

83. The Commission seeks comment on this proposal and on alternative approaches to conducting, in a timely manner, an auction of 24 GHz licenses.

2. Determining Categories of Generic Blocks for Bidding

84. The *2017 Spectrum Frontiers Order* determined that the 24 GHz band would be licensed uniformly in 100 megahertz blocks, with the lower segment (24.25–24.45 GHz) licensed as two 100 megahertz blocks, and the upper segment (24.75–25.25) as five 100 megahertz blocks, in each of 416 PEAs. Given the 300 megahertz separation between the two segments of the band, the Commission proposes to conduct bidding in most PEAs in the clock phase of Auction 102 for generic blocks in two

categories. Under this proposal, there will be two generic blocks in the lower 24 GHz segment (Category L) and five generic blocks in the upper 24 GHz segment (Category U). In nine PEAs, an incumbent licensee will be relocated to part of one, and potentially two, 100 megahertz blocks, leaving those blocks with less available bandwidth to be licensed in the auction. Therefore, the Commission proposes to include an additional bidding category, or potentially two additional bidding categories, to accommodate any blocks with reduced bandwidth. The Commission anticipates that a reduced-bandwidth block will be located in the upper block of the lower segment and a possible second reduced block will be in the uppermost block of the upper segment. The bidding categories for these blocks will be referred to as Category LI and Category UI, respectively.

85. Accordingly, in each round of the clock phase, a bidder will have the opportunity to bid for up to two blocks of spectrum in Category L and for up to five blocks in Category U, in each of 407 PEAs. In nine PEAs, bidders may bid for one fewer block in either Category L or Category U (and possibly in both categories), and for one block in Category LI and/or UI. Bidding in the auction will determine a single price for all of the generic blocks in each category in each PEA. Winners of generic blocks in the clock phase will then have the opportunity to bid for specific frequency license assignments during the assignment phase of the auction.

86. The Commission seeks comment on its proposal to conduct bidding in two categories of generic blocks, corresponding to the two segments of the band, in the unencumbered PEAs during the clock phase of the auction. The Commission also seeks comment on conducting bidding on an additional category or categories when a block in a PEA has less than 100 megahertz of bandwidth. Is there a minimum number of megahertz below which the Commission should not offer a block? If there is a reduced bandwidth block in the lower segment of the band and another in the upper segment of the band, should the Commission include both blocks in a single category, instead of its proposal to create a separate category for each? Commenters that believe the Commission should instead conduct bidding for a single category of generic blocks in the unencumbered PEAs, or for more than two categories, should

explain their reasoning and address issues of auction length and bidder manageability.

3. Bidding Rounds

87. Under this proposal, Auction 102 will consist of sequential bidding rounds, each followed by the release of round results. The initial bidding schedule will be announced in a public notice to be released at least one week before the start of bidding.

88. The Commission will conduct Auction 102 over the Internet using the FCC auction bidding system. Bidders will also have the option of placing bids by telephone through a dedicated auction bidder line. The toll-free telephone number for the auction bidder line will be provided to qualified bidders prior to the start of bidding in the auction.

89. The Commission proposes that the Bureau retain the discretion to change the bidding schedule in order to foster an auction pace that reasonably balances speed with the bidders' need to study round results and adjust their bidding strategies. Under this proposal, the Bureau may change the amount of time for bidding rounds, the amount of time between rounds, or the number of rounds per day, depending upon bidding activity and other factors. The Commission seeks comment on this proposal. Commenters on this issue should address the role of the bidding schedule in managing the pace of the auction, specifically discussing the tradeoffs in managing auction pace by bidding schedule changes, by changing the activity requirements or bid amount parameters, or by using other means.

4. Stopping Rule

90. The Commission proposes a simultaneous stopping rule for Auction 102, under which all categories of licenses in all PEAs would remain available for bidding until the bidding stops on every category. Specifically, the Commission proposes that the clock phase of bidding will close for all categories of blocks after the first round in which there is no excess demand in any category in any PEA. Consequently, under this approach, it is not possible to determine in advance how long Auction 102 would last. The Commission seeks comment on its proposed simultaneous stopping rule.

5. Information Relating to Auction Delay, Suspension, or Cancellation

91. For Auction 102, the Commission proposes that at any time before or during the bidding process, the Bureau may delay, suspend, or cancel bidding in Auction 102 in the event of a natural disaster, technical obstacle, network interruption, administrative or weather necessity, evidence of an auction security breach or unlawful bidding activity, or for any other reason that affects the fair and efficient conduct of competitive bidding. The Bureau will notify participants of any such delay, suspension, or cancellation by public notice and/or through the FCC auction bidding system's announcement function. If the bidding is delayed or suspended, the Bureau may, in its sole discretion, elect to resume the auction starting from the beginning of the current round or from some previous round, or cancel the auction in its entirety. The Commission emphasizes that the Bureau will exercise this authority solely at its discretion. The Commission seeks comment on this proposal.

6. Upfront Payments and Bidding Eligibility

92. In keeping with the Commission's usual practice in spectrum license auctions, the Commission proposes that applicants be required to submit upfront payments as a prerequisite to becoming qualified to bid. The upfront payment is a refundable deposit made by an applicant to establish its eligibility to bid on licenses. Upfront payments that are related to the inventory of licenses being auctioned protect against frivolous or insincere bidding and provide the Commission with a source of funds from which to collect payments owed at the close of bidding. With these considerations in mind, the Commission proposes upfront payments based on \$0.001 per MHz-pop. The results of these calculations will be rounded using the Commission's standard rounding procedures for auctions. Additionally, the proposed upfront payment amount for Gulf of Mexico licenses is \$1,000. The proposed upfront payments equal approximately half the proposed minimum opening bids. The Commission seeks comment on these upfront payment amounts, which are specified in Attachment A to the *Auctions 101 and 102 Comment Public Notice*.

93. The Commission further proposes that the amount of the upfront payment submitted by a bidder will determine its initial bidding eligibility in bidding units, which are a measure of bidder

eligibility and bidding activity. The Commission proposes to assign each PEA a specific number of bidding units, equal to one bidding unit per dollar of the upfront payment listed in Attachment A to the *Auctions 101 and 102 Comment Public Notice*. The number of bidding units for a given PEA is fixed and does not change during the auction as prices change. The bidding unit amount assigned to a specific PEA will pertain to a single generic block for that PEA. To the extent that bidders wish to bid on multiple generic blocks simultaneously, they will need to ensure that their upfront payment provides enough eligibility to cover multiple blocks. Under this proposed approach to calculating bidding units, the generic Category L and Category U blocks in a PEA will be assigned the same number of bidding units, which will facilitate bidding across categories. Any Category LI and Category UI blocks in a PEA will be assigned proportionally fewer bidding units than the 100 megahertz blocks.

94. Under the Commission's proposed approach, a bidder's upfront payment will not be attributed to blocks in a specific PEA or PEAs. If an applicant is found to be qualified to bid on more than one block being offered in Auction 102, such bidder may place bids on multiple blocks, provided that the total number of bidding units associated with those blocks does not exceed its current eligibility. A bidder cannot increase its eligibility during the auction; it can only maintain its eligibility or decrease its eligibility. Thus, in calculating its upfront payment amount and hence its initial bidding eligibility, an applicant must determine the maximum number of bidding units on which it may wish to bid in any single round, and submit an upfront payment amount covering that total number of bidding units. The Commission seeks comment on these proposals.

95. For Auction 102, the Commission anticipates setting a deadline for the submission of upfront payments that will occur after bidding in Auction 101 concludes even if the Auction 102 auction application window is scheduled to occur prior to the close of bidding in Auction 101. Under this approach, an Auction 102 applicant that participated in Auction 101 could take into account the licenses it won in Auction 101 when determining the amount of its upfront payment. The Commission seeks comment on the anticipated timing for upfront payments for Auction 102.

7. Activity Rule, Activity Rule Waivers, and Reducing Eligibility

96. In order to ensure that the auction closes within a reasonable period of time, an activity rule requires bidders to bid actively throughout the auction, rather than wait until late in the auction before participating. For a clock auction, a bidder's activity in a round for purposes of the activity rule will be the sum of the bidding units associated with the bidder's demands as applied by the auction system during bid processing. Bidders are required to be active on a specific percentage of their current bidding eligibility during each round of the auction. Failure to maintain the requisite activity level will result in a reduction in the bidder's eligibility, possibly curtailing or eliminating the bidder's ability to place additional bids in the auction.

97. The Commission proposes to require that bidders maintain a fixed, high level of activity in each round of Auction 102 in order to maintain bidding eligibility. Specifically, the Commission proposes to require that bidders be active on between 92 and 97 percent of their bidding eligibility in all regular clock rounds. Thus, the activity rule would be satisfied when a bidder has bidding activity on blocks with bidding units that total 92 to 97 percent of its current eligibility in the round. If the activity rule is met, then the bidder's eligibility does not change in the next round. The Commission proposes to calculate bidding activity based on the bids that are accepted by the FCC auction bidding system. That is, if a bidder requests a reduction in the quantity of blocks it demands in a category, but the FCC auction bidding system does not accept the request because demand for the category would fall below the available supply, the bidder's activity will reflect its unreduced demand. If the activity rule is not met in a round, a bidder's eligibility automatically would be reduced. Under the Commission's proposal, the Bureau will retain the discretion to change the activity requirements during the auction.

98. The Commission invites comment on this proposal, in particular on where to set the activity requirement between 92 and 97 percent. Commenters may wish to address the relationship between the proposed activity rule and the ability of bidders to switch their demands across PEAs or across categories of blocks within a PEA. The Commission encourages any commenters that oppose an

activity rule in this range to explain their reasons with specificity.

99. The Commission points out that under its proposed clock auction, bidders are required to indicate their demands in every round, even if their demands at the new round's prices are unchanged from the previous round. Missing bids—bids that are not reconfirmed—are treated by the auction bidding system as requests to reduce to a quantity of zero blocks for the category. If these requests are applied, or applied partially, a bidder's bidding activity, and hence its bidding eligibility for the next round, will be reduced.

100. For Auction 102, the Commission does not propose to provide for activity rule waivers to preserve a bidder's eligibility. This proposal is consistent with the ascending clock auction procedures used in Auction 1002. In previous FCC multiple round auctions, when a bidder's eligibility in the current round was below a required minimum level, the bidder was able to preserve its current level of eligibility with a limited number of activity rule waivers. The clock auction, however, relies on precisely identifying the point at which demand falls to equal supply to determine winning bidders and final prices. Allowing waivers would create uncertainty with respect to the exact level of bidder demand, interfering with the basic clock price-setting and winner determination mechanism. Moreover, uncertainty about the level of demand would affect the way bidders' requests to reduce demand are processed by the FCC auction bidding system, as discussed below. The Commission seeks comment on this proposal.

8. Acceptable Bids

a. Reserve Price or Minimum Opening Bids

101. The Commission seeks comment on the use of a minimum opening bid amount and/or reserve price prior to the start of each auction.

102. The Commission proposes to establish minimum opening bid amounts for Auction 102. The bidding system will not accept bids lower than these amounts. At the beginning of the clock phase, a bidder will indicate how many blocks in a generic license category in a PEA it demands at the minimum opening bid price. For Auction 102, the Commission proposes to establish initial clock prices, or

minimum opening bids, as set forth in the following paragraph. The Commission does not propose to establish an aggregate reserve price or block reserve prices that are different from minimum opening bid amounts for the licenses to be offered in Auction 102.

103. For Auction 102, the Commission proposes to calculate minimum opening bid amounts using a formula based on bandwidth and license area population, similar to its approach in many previous spectrum auctions. Accordingly, blocks with less than the full 100 megahertz of bandwidth would have lower minimum opening bid amounts than the other blocks in a PEA. The Commission proposes to use a calculation based on \$0.002 per MHz-pop. Additionally, the minimum opening bid amount for Gulf of Mexico licenses is \$1,000. The Commission seeks comment on these minimum opening bid amounts, which are specified in Attachment A to the *Auctions 101 and 102 Comment PN*. If commenters believe that these minimum opening bid amounts will result in unsold licenses, are not reasonable amounts, or should instead operate as reserve prices, they should explain why this is so and comment on the desirability of an alternative approach. Commenters should support their claims with valuation analyses and suggested amounts or formulas for reserve prices or minimum opening bids.

104. In establishing minimum opening bid amounts, the Commission particularly seeks comment on factors that could reasonably have an impact on bidders' valuation of the spectrum, including the type of service offered, market size, population covered by the proposed facility, and any other relevant factors.

105. Commenters may also wish to address the general role of minimum opening bids in managing the pace of the auction. For example, commenters could compare using minimum opening bids—e.g., by setting higher minimum opening bids to reduce the number of rounds it takes licenses to reach their final prices—to other means of controlling auction pace, such as changes to bidding schedules or activity requirements.

b. Clock Price Increments

106. Under the Commission's proposed clock auction format for Auction 102, after bidding in

the first round and before each subsequent round, the FCC auction bidding system will announce a clock price for the next round, which is the highest price to which bidders can respond during the round. The Commission proposes to set the clock price for each category available in each specific PEA for a round by adding a fixed percentage increment to the price for the previous round. As long as total demand for blocks in a category exceeds the supply of blocks, the percentage increment will be added to the clock price from the prior round. If demand equaled supply at an intra-round bid price in a previous round, then the clock price for the next round will be set by adding the percentage increment to the intra-round bid price. Final clock prices, however, will not increase above the price at which there is no excess demand.

107. The Commission proposes to apply an increment that is between five and fifteen percent and generally to apply the same increment percentage to all categories in all PEAs. The Commission proposes to set the initial increment within this range, and to adjust the increment as rounds continue. The proposed five-to-fifteen percent increment range will allow the FCC to set a percentage that manages the auction pace, taking into account bidders' needs to evaluate their bidding strategies while moving the auction along quickly. The Commission also proposes that increments may be changed during the auction on a PEA-by-PEA or category-by-category basis based on bidding activity to assure that the system can offer appropriate price choices to bidders.

c. Intra-Round Bids

108. The Commission proposes to permit a bidder to make intra-round bids by indicating a point between the previous round's price and the new clock price at which its demand for blocks in a category changes. In placing an intra-round bid, a bidder would indicate a specific price and a quantity of blocks it demands if the price for blocks in the category should increase beyond that price.

109. Intra-round bids would be optional; a bidder may choose to express its demands only at the clock prices. This proposal to permit intra-round bidding would allow the auction system to use relatively large clock increments, thereby speeding the clock phase, without running the risk that a jump in the clock price will overshoot the market clearing price—the point at which demand for blocks equals

the available supply.

9. Reducing Demand, Bid Types, and Bid Processing

110. Here the Commission proposes specific bidding procedures for the clock phase of Auction 102, and addresses how the FCC auction bidding system will process the proposed types of permitted bids. As an initial matter, the Commission proposes that the FCC auction bidding system not allow a bidder to reduce the quantity of blocks it demands in a category if the reduction will result in aggregate demand falling below the available supply of blocks in the category.

111. Under the ascending clock format the Commission proposes for Auction 102, a bidder will indicate in each round the quantity of blocks in each category in each PEA that it demands at a given price, indicating that it is willing to pay up to that price for the specified quantity. A bidder can express its demands at the clock price or at an intra-round price, and bid quantities can represent an increase or a decrease over the bidder's previous demands for blocks in a category.

112. Under the Commission's proposal, if a bidder demands fewer blocks in a category than it did in the previous round, the FCC auction bidding system will treat the bid as a request to reduce demand that will be implemented only if aggregate demand would not fall below the available supply of blocks in the category.

113. The Commission also proposes to process bids in order of price point after a round ends, where the price point represents the percentage of the bidding interval for the round. For example, if the price for the previous round is \$5,000 and the new clock price is \$6,000, a price of \$5,100 will correspond to the 10 percent price point, since it is 10 percent of the bidding interval between \$5,000 and \$6,000. Under this proposal, once a round ends, the FCC auction bidding system will process bids in ascending order of price point, first considering intra-round bids in order of price point and then bids at the clock price. The system will consider bids at the lowest price point for all categories in all PEAs, then look at bids at the next price point in all areas, and so on. In processing the bids submitted in the round, the FCC auction bidding system will determine the extent to which there is excess demand for each category in

each PEA in order to determine whether a bidder's requested change(s) in demand can be implemented.

114. For a given category in a given PEA, the uniform price for all of the blocks in the category will stop increasing when aggregate demand no longer exceeds the available supply of blocks in the category. If no further bids are placed, the final clock phase price for the category will be the stopped price.

115. In order to facilitate bidding for multiple blocks in a PEA, the Commission proposes that bidders will be permitted to make two types of bids: simple bids and switch bids.

116. A "simple" bid indicates a desired quantity of licenses in a category at a price (either the clock price or an intra-round price). Simple bids may be applied partially. A simple bid that involves a reduction from the bidder's previous demands may be implemented partially if aggregate excess demand is insufficient to support the entire reduction. A simple bid to increase a bidder's demands in a category may be applied partially if the total number of bidding units associated with the bidder's demand exceeds the bidder's bidding eligibility for the round.

117. A "switch" bid allows the bidder to request to move its demand for a quantity of licenses from the L category to the U category, or vice versa, within the same PEA. Switch bids may not include a block in Category LI or UI. A switch bid may be applied partially, but the increase in demand in the "to" category will always match in quantity the reduction in the "from" category.

118. The proposed bid types will allow bidders to express their demand for blocks in the next clock round without running the risk that they will be forced to purchase more spectrum at a higher price than they wish. When a bid to reduce demand can be applied only partially, the uniform price for the category will stop increasing at that point, since the partial application of the bid results in demand falling to equal supply. Hence, a bidder that makes a simple bid or a switch bid that cannot be fully applied will not face a price for the remaining demand that is higher than its bid price.

119. Because in any given round some bidders may increase demands for licenses in a category while others may request reductions, the price point at which a bid is considered by the auction

bidding system can affect whether it is accepted. In addition to proposing that bids be considered by the system in order of increasing “price point,” the Commission further proposes that bids not accepted because of insufficient aggregate demand or insufficient eligibility be held in a queue and considered, again in order, if there should be excess supply or sufficient eligibility later in the processing after other bids are processed.

120. More specifically, under the Commission’s proposed procedures, once a round closes, the auction system will process the bids by first considering the bid submitted at the lowest price point and determine whether it can be accepted given aggregate demand as determined most recently and given the associated bidder’s eligibility. If the bid can be accepted, or partially accepted, the number of licenses the bidder demands will be adjusted, and aggregate demand will be recalculated accordingly. If the bid cannot be accepted in part or in full, the unfulfilled bid, or portion thereof, will be held in a queue to be considered later during bid processing for that round. The FCC auction bidding system will then consider the bid submitted at the next highest price point, accepting it in full, in part, or not at all, given recalculated aggregate demand and given the associated bidder’s eligibility. Any unfulfilled requests will again be held in a queue, and aggregate demand will again be recalculated. Every time a bid or part of a bid is accepted and aggregate demand has been recalculated, the unfulfilled bids held in queue will be reconsidered, in the order of their original price points (and by pseudo-random number, in the case of tied price points). The auction bidding system will not carry over unfulfilled bid requests to the next round, however. The bidding system will advise bidders of the status of their bids when round results are released.

121. After the bids are processed in each round, the FCC auction bidding system will announce new clock prices to indicate a range of acceptable bids for the next round. Each bidder will be informed of the number of blocks in a category on which it holds bids, the extent of excess demand for each category, and, if demand fell to equal supply during the round, the intra-round price point at which that occurred.

122. No Bidding Aggregation. Because of the additional complexity such procedures would introduce into the auction, the Commission does not propose to incorporate any package bidding procedures into Auction 102. A bidder may bid on multiple blocks in a PEA and in multiple PEAs. As set forth below, the Commission proposes that the assignment phase will assign contiguous blocks to winners of multiple blocks in a category in a PEA, and give bidders an opportunity to express their preferences for specific frequency blocks, thereby facilitating aggregations of licenses.

123. The Commission seeks comment on its proposals regarding reducing demand, bid types, and bid processing for Auction 102.

10. Winning Bids in the Clock Phase

124. Under the Commission's proposed clock auction format for Auction 102, bidders that are still expressing demand for a quantity of blocks in a category in a PEA at the time the stopping rule is met will become the winning bidders, and will be assigned specific frequencies in the assignment phase.

11. Bid Removal and Bid Withdrawal

125. The FCC auction bidding system allows each bidder to remove any of the bids it placed in a round before the close of that round. By removing a bid placed within a round, a bidder effectively "unsubmits" the bid. Once a round closes, a bidder may no longer remove a bid.

126. Unlike an SMR auction, there are no provisionally winning bids in a clock auction. As a result, the concept of bid withdrawals is inapplicable to a clock auction. As proposed above, however, bidders in Auction 102 may request to reduce demand for generic blocks.

12. Assignment Phase

127. The Commission proposes procedures to implement the assignment phase, for which the *Assignment Phase Technical Guide* provides the mathematical details. Under the Commission's proposal, winning bidders from the clock phase that have a preference for specific frequencies will have an opportunity to submit sealed bids for particular frequency blocks in a separate single assignment round for each particular PEA or group of PEAs. The Commission proposes that this assignment phase be

voluntary: winning bidders in the clock phase of Auction 102 need not participate in order to be assigned a number of licenses corresponding to the outcome of the clock phase. Moreover, a bidder that wins multiple blocks in a category in a PEA will be assigned contiguous blocks of licenses, even without participating in the assignment phase. A winner of a block in a category that includes only a single block will not need to bid for an assignment in the assignment phase. The Commission proposes to group bidding for multiple PEAs in some circumstances, so as to reduce the number of separate assignment rounds required, and to sequence the bidding for the various PEAs.

128. The Commission seeks comment below on this proposed approach to structure bidding and bid processing in each assignment round.

a. Sequencing and Grouping of PEAs

129. The Commission proposes to sequence assignment rounds so as to make it easier for bidders to incorporate frequency assignments from previously-assigned areas into their bid preferences for other areas, recognizing that bidders winning multiple blocks of licenses generally will prefer contiguous blocks across adjacent PEAs. The Commission proposes to conduct rounds for the largest markets first to enable bidders to establish a “footprint” from which to work.

130. Specifically, the Commission proposes to conduct a separate assignment round for each of the top 40 PEAs and to conduct these assignment rounds sequentially, beginning with the largest PEAs. Once the top 40 PEAs have been assigned, the Commission proposes to conduct, for each Regional Economic Area Grouping (REAG), a series of assignment rounds for the remaining PEAs within that region. The Commission further proposes, where feasible, to group into a single market for assignment any non-top 40 PEAs within a region in which the supply of blocks is the same in each category, the same bidders won the same number of blocks in each category, and all are subject to the small markets bidding cap or all not subject to the cap, which will also help maximize contiguity across PEAs. The Commission proposes to sequence the assignment rounds within a REAG in descending order of population for a PEA group or individual PEA. The Commission further proposes, to the extent

practical, to conduct the bidding for the different REAGs in parallel, to reduce the total amount of time required to complete the assignment phase.

131. The Commission seeks comment on these proposals for sequencing assignment rounds, and on its proposal to group PEAs for bidding under some circumstances within REAGs.

b. Acceptable Bids and Bid Processing

132. Under the Commission’s proposal, in each assignment round, a bidder will be asked to assign a price to one or more possible frequency assignments for which it wishes to express a preference, consistent with its winning bid(s) for generic blocks in the clock phase. The price will represent a maximum payment that the bidder is willing to pay, in addition to the base price established in the clock phase for the generic blocks, for the frequency-specific license or licenses in its bid. The Commission proposes that a bidder will submit its preferences for blocks it won in the upper and lower segments separately, rather than submitting bids for preferences that include blocks in both segments. That is, if a bidder won one block in the lower segment and two blocks in the upper segment, it would not be able to submit a single bid amount for an assignment that included all three blocks. Instead, it would submit its bid for an assignment in the lower segment separately from its bid or bids for assignments in the upper segment.

133. The Commission proposes to use an optimization approach to determine the winning frequency assignment for each category in each assignment round. The Commission proposes that the auction system will select the assignment that maximizes the sum of bid amounts among all assignments that satisfy the contiguity requirements. Furthermore, if multiple blocks in Category U in a PEA remain unsold, the unsold licenses will be contiguous. The Commission proposes that the additional price a bidder will pay for a specific frequency assignment (above the base price) will be calculated consistent with a generalized “second price” approach—that is, the winner will pay a price that would be just sufficient to result in the bidder receiving that same winning frequency assignment while ensuring that no group of bidders is willing to pay more for an alternative assignment that satisfies the contiguity

restrictions. This price will be less than or equal to the price the bidder indicated it was willing to pay for the assignment. The Commission proposes to determine prices in this way because it facilitates bidding strategy for the bidders, encouraging them to bid their full value for the assignment, knowing that if the assignment is selected, they will pay no more than would be necessary to ensure that the outcome is competitive.

134. The Commission seeks comment on these proposed procedures. In particular, the Commission asks whether bidders would find it useful to be able to submit a single bid for assignments that include frequencies in the lower segment and frequencies in the upper segment, in cases where the bidder won blocks in both segments.

VI. POST-AUCTION PAYMENTS

A. Interim Withdrawal Payment Percentage

135. In the event the Commission allows bid withdrawals in Auction 101, the Commission proposes the interim bid withdrawal payment be 15 percent of the withdrawn bid. A bidder that withdraws a bid during an auction is subject to a withdrawal payment equal to the difference between the amount of the withdrawn bid and the amount of the winning bid in the same or a subsequent auction. The withdrawal payment amount is deducted from any upfront payments or down payments that the withdrawing bidder has deposited with the Commission. No withdrawal payment is assessed for a withdrawn bid if either the subsequent winning bid or any of the intervening subsequent withdrawn bids equals or exceeds that withdrawn bid. However, if a license for which a bid had been withdrawn does not receive a subsequent higher bid or winning bid in the same auction, the FCC cannot calculate the final withdrawal payment until that license receives a higher bid or winning bid in a subsequent auction. In such cases, when that final withdrawal payment cannot yet be calculated, the FCC imposes on the bidder responsible for the withdrawn bid an interim bid withdrawal payment, which will be applied toward any final bid withdrawal payment that is ultimately assessed.

136. The amount of the interim bid withdrawal payment is established in advance of bidding

in each auction and may range from three percent to twenty percent of the withdrawn bid amount. The Commission has determined that the level of the interim withdrawal payment in a particular auction will be based on the nature of the service and the inventory of the licenses being offered. The Commission noted specifically that a higher interim withdrawal payment percentage is warranted to deter the anti-competitive use of withdrawals when, for example, bidders will not need to aggregate the licenses being offered in the auction or when there are few synergies to be captured by combining licenses. With respect to the flexible-use UMFUS licenses being offered in Auction 101, the service rules permit a variety of advanced spectrum-based services, some of which may best be offered by combining licenses on adjacent frequencies or in adjacent areas. Balancing the potential need for bidders to use withdrawals to avoid winning incomplete combinations of licenses with the Commission's interest in deterring undesirable strategic use of withdrawals, the Commission proposes to establish an interim bid withdrawal payment of 15 percent of the withdrawn bid for Auction 101. The Commission seeks comment on this proposal.

B. Additional Default Payment Percentage

137. Any winning bidder that defaults or is disqualified after the close of an auction (i.e., fails to remit the required down payment by the specified deadline, fails to submit a timely long-form application, fails to make full and timely final payment, or is otherwise disqualified) is liable for a default payment under Section 1.2104(g)(2) of the rules. This payment consists of a deficiency payment, equal to the difference between the amount of the bidder's winning bid and the amount of the winning bid the next time a license covering the same spectrum is won in an auction, plus an additional payment equal to a percentage of the defaulter's bid or of the subsequent winning bid, whichever is less.

138. The Commission's rules provide that, in advance of each auction, it will establish a percentage between three and twenty percent of the applicable winning bid to be assessed as an additional default payment. As the Commission has indicated, the level of this additional payment in each auction will be based on the nature of the service and the licenses being offered.

139. For Auctions 101 and 102, the Commission proposes to establish an additional default

payment of 15 percent. As noted in the *CSEA/Part 1 Report and Order*, 71 FR 6214, February 7, 2006, defaults weaken the integrity of the auction process and may impede the deployment of service to the public, and an additional default payment of up to 20 percent will be more effective in deterring defaults than the 3 percent used in some earlier auctions. At the same time, the Commission does not believe the detrimental effects of any defaults in Auctions 101 and 102 are likely to be unusually great. In light of these considerations, the Commission proposes for Auctions 101 and 102 an additional default payment of 15 percent of the relevant bid. The Commission seeks comment on this proposal.

140. In case they are needed for post-auction administrative purposes, the bidding system will calculate individual per-license prices that are separate from final auction payments, which are calculated on an aggregate basis. The bidding system will apportion to individual licenses any assignment phase payments and any capped bidding credit discounts, since in both cases, a single amount may apply to multiple licenses.

VII. TUTORIAL AND ADDITIONAL INFORMATION FOR APPLICANTS

141. The Commission intends to provide additional information on the bidding system and to offer demonstrations and other educational opportunities for applicants in Auctions 101 and 102 to familiarize themselves with the FCC auction application system and the auction bidding system. For example, the Commission intends to release an online tutorial for each auction that will help applicants understand the procedures to be followed in the filing of their auction short-form applications (FCC Form 175) for Auctions 101 and 102, respectively.

VIII. PROCEDURAL MATTERS

A. Supplemental Initial Regulatory Flexibility Analysis

142. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this Supplemental Initial Regulatory Flexibility Analysis (Supplemental IRFA) of the possible significant economic impact on small entities of the policies and rules addressed in the *Auctions 101 and 102 Comment Public Notice* to supplement the Commission's Initial and Final

Regulatory Flexibility Analyses completed in the *Spectrum Frontiers Orders* and other Commission orders pursuant to which Auctions 101 and 102 will be conducted. Written public comments are requested on this Supplemental IRFA. Comments must be identified as responses to the Supplemental IRFA and must be filed by the same deadline for comments specified on the first page of the *Auctions 101 and 102 Comment Public Notice*. The Commission will send a copy of the *Auctions 101 and 102 Comment Public Notice*, including this Supplemental IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).

1. Need for, and Objectives of, the Proposed Rules

143. The *Auctions 101 and 102 Comment Public Notice* seeks comment on proposed procedural rules to govern Auctions 101 and 102, two auctions of 5,986 Upper Microwave Flexible Use Service (UMFUS) licenses. This process is intended to provide notice of and adequate time for potential applicants to comment on proposed auction procedures. To promote the efficient and fair administration of the competitive bidding process for all Auction 101 and Auction 102 participants, the Commission seeks comment on the following proposed procedures: (1) use of separate application and bidding processes for Auctions 101 and 102, including separate application filing windows; (2) application of the current rules prohibiting certain communications among applicants in the same auction (i.e., Auction 101 or Auction 102), and between Auction 101 applicants and Auction 102 applicants; (3) identification of “nationwide providers” for the purpose of implementing the Commission’s competitive bidding rules in Auctions 101 and 102; (4) establishment of bidding credit caps for eligible small businesses and rural service providers in Auctions 101 and 102; (5) use of a simultaneous multiple-round auction format for Auction 101, consisting of sequential bidding rounds with a simultaneous stopping rule (with discretion by the Bureau to exercise alternative stopping rules under certain circumstances); (6) use of a clock auction format for Auction 102 under which each qualified bidder will indicate in successive clock bidding rounds its demands for categories of generic blocks in specific geographic areas; (7) a specific minimum opening bid amount for each license available in Auction 101 and for generic blocks in each

PEA available in Auction 102; (8) a specific upfront payment amount for each license available in Auction 101 and for generic blocks in each PEA available in Auction 102; (9) establishment of a bidder's initial bidding eligibility in bidding units based on that bidder's upfront payment through assignment of a specific number of bidding units for each license (Auction 101) or generic block (Auction 102); (10) use of an activity rule that would require bidders to bid actively during the auction rather than waiting until late in the auction before participating; (11) for Auction 101, a two-stage auction in which a bidder is required to be active on 80 percent of its bidding eligibility in each round of the first stage, and on 95 percent of its bidding eligibility in each round of the second stage; (12) for Auction 102, a requirement that bidders be active on between 92 and 97 percent of their bidding eligibility in all regular clock rounds; (13) for Auction 101, provision of three activity rule waivers for each bidder to allow it to preserve eligibility during the course of the auction; (14) for Auction 101, use of minimum acceptable bid amounts and additional bid increments, along with a proposed methodology for calculating such amounts, with the Bureau retaining discretion to change its methodology if circumstances dictate; (15) for Auction 102, establishment of acceptable bid amounts, including clock price increments and intra-round bids, along with a proposed methodology for calculating such amounts; (16) for Auction 102, use of two bid types, along with a proposed methodology for processing bids and requests to reduce demand; (17) for Auction 101, a procedure for breaking ties if identical high bid amounts are submitted on a license in a given round; (18) bid removal procedures; (19) whether to permit bid withdrawals; (20) for Auction 102, establishment of an assignment phase that will determine which frequency-specific licenses will be won by the winning bidders of generic blocks during the clock phase; (21) establishment of an interim bid withdrawal percentage of 15 percent of the withdrawn bid in the event the Commission allows bid withdrawals in Auction 101; and (22) establishment of an additional default payment of 15 percent under Section 1.2104(g)(2) of the rules in the event that a winning bidder defaults or is disqualified after either auction.

2. Legal Basis

144. The Commission's statutory obligations to small businesses under the Communications Act of 1934, as amended, are found in Sections 309(j)(3)(B) and 309(j)(4)(D). The statutory basis for the Commission's competitive bidding rules is found in various provisions of the Communications Act of 1934, as amended, including 47 U.S.C. §§ 154(i), 301, 302, 303(e), 303(f), 303(r), 304, 307, and 309(j). The Commission has established a framework of competitive bidding rules, updated most recently in 2015, pursuant to which it has conducted auctions since the inception of the auction program in 1994 and would conduct Auctions 101 and 102. In promulgating those rules, the Commission conducted numerous RFA analyses to consider the possible impact of those rules on small businesses that might seek to participate in Commission auctions. In addition, multiple Final Regulatory Flexibility Analyses (FRFAs) were included in the rulemaking orders which adopted or amended rule provisions relevant to the *Auctions 101 and 102 Comment Public Notice*.

3. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

145. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules and policies, if adopted. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.

146. As noted above, FRFAs were incorporated into the *Spectrum Frontiers Orders*. In those analyses, the Commission described in detail the small entities that might be significantly affected. In the *Auctions 101 and 102 Comment Public Notice*, the Commission incorporates by reference the descriptions and estimates of the number of small entities from the previous FRFAs in the *Spectrum*

4. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

147. The Commission designed the auction application process itself to minimize reporting and compliance requirements for applicants, including small business applicants. In the first part of the Commission's two-phased auction application process, parties desiring to participate in an auction file streamlined, short-form applications in which they certify under penalty of perjury as to their qualifications. Eligibility to participate in bidding is based on an applicant's short-form application and certifications, as well as its upfront payment. In the second phase of the process, winning bidders file a more comprehensive long-form application. Thus, an applicant which fails to become a winning bidder does not need to file a long-form application and provide the additional showings and more detailed demonstrations required of a winning bidder.

5. Steps taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

148. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.

149. The Commission has taken steps to minimize any economic impact of its auction procedures on small businesses through among other things, the many resources it provides potential auction participants. Small entities and other auction participants may seek clarification of or guidance on complying with competitive bidding rules and procedures, reporting requirements, and the FCC's auction

bidding system. An FCC Auctions Hotline provides access to Commission staff for information about the auction process and procedures. The FCC Auctions Technical Support Hotline is another resource which provides technical assistance to applicants, including small business entities, on issues such as access to or navigation within the electronic FCC Form 175 and use of the FCC's auction bidding system. Small entities may also utilize the web-based, interactive online tutorial produced by Commission staff for each auction to familiarize themselves with auction procedures, filing requirements, bidding procedures, and other matters related to an auction.

150. The Commission also makes various databases and other sources of information, including the Auctions program websites, and copies of Commission decisions, available to the public without charge, providing a low-cost mechanism for small businesses to conduct research prior to and throughout the auction. Prior to and at the close of Auctions 101 and 102, the Commission will post public notices on the Auctions website, which articulate the procedures and deadlines for the respective auctions. The Commission makes this information easily accessible and without charge to benefit all Auction 101 and Auction 102 applicants, including small businesses, thereby lowering their administrative costs to comply with the Commission's competitive bidding rules.

151. Prior to the start of bidding in each auction, eligible bidders are given an opportunity to become familiar with auction procedures and the bidding system by participating in a mock auction. Further, the Commission intends to conduct Auctions 101 and 102 electronically over the Internet using its web-based auction system that eliminates the need for bidders to be physically present in a specific location. Qualified bidders also have the option to place bids by telephone. These mechanisms are made available to facilitate participation in Auction 101 and Auction 102 by all eligible bidders, and may result in significant cost savings for small business entities who utilize these alternatives. Moreover, the adoption of bidding procedures in advance of the auctions, consistent with statutory directive, is designed to ensure that the auctions will be administered predictably and fairly for all participants, including small businesses.

152. For Auction 101 and Auction 102, the Commission proposes a \$25 million cap on the total amount of bidding credits that may be awarded to an eligible small business and a \$10 million cap on the total amount of bidding credits that may be awarded to a rural service provider in each auction. In addition, the Commission proposes a \$10 million cap on the overall amount of bidding credits that any winning small business bidder in either auction may apply to winning licenses in markets with a population of 500,000 or less. Based on the technical characteristics of the UMFUS bands and its analysis of past auction data, the Commission anticipates that its proposed caps will allow the majority of small businesses in each auction to take full advantage of the bidding credit program, thereby lowering the relative costs of participation for small businesses.

153. These proposed procedures for the conduct of Auctions 101 and 102 constitute the more specific implementation of the competitive bidding rules contemplated by Parts 1 and 30 of the Commission's rules and the underlying rulemaking orders, including the *Spectrum Frontiers Orders* and relevant competitive bidding orders, and are fully consistent therewith.

6. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

154. None.

B. Ex Parte Rules

155. This proceeding has been designated as a "permit-but-disclose" proceeding in accordance with the Commission's ex parte rules. Persons making oral ex parte presentations must file a copy of any written presentations or memoranda summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine Period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentations must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's

written comments, memoranda, or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to the Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.

Federal Communications Commission.

Marlene Dortch

Secretary.

[FR Doc. 2018-09415 Filed: 5/3/2018 8:45 am; Publication Date: 5/4/2018]